

## **Attachment 2**

**Operations Group Chairman's  
Factual Report**

**DCA05MA003**

**Double Engine Failure Procedures**

**Pinnacle Airlines**



**Northwest Airlink**

**CANADAIR REGIONAL JET**

**FLIGHT CREW OPERATING MANUAL—Volume 2**

## **DOUBLE ENGINE FAILURE (IN FLIGHT)**

### **Indication:**

- EICAS indications: N<sub>1</sub>, N<sub>2</sub>, ITT, and fuel flow indications

1. CONT IGNITION ..... ON

Check that the CONT IGNITION status message illuminates.

### **If engines continue to run down:**

2. Thrust Levers (Both) ..... SHUTOFF
3. ADG Manual Deploy Handle ..... PULL

Check the following:

- a. The EMER PWR ONLY warning message illuminates.
- b. AC ESS BUS is powered.

### **When ADG power is established:**

4. STAB TRIM CH 2 Switch ..... ENGAGE

Press in to engage STAB TRIM CH 2.

5. Target Airspeed ..... ESTABLISH

Above FL340: ..... 0.7 MACH

Below FL340: ..... 240 KIAS

### **Maintain airspeed until ready to restart engines.**

6. APU (30,000 Feet and Below) ..... START

Refer to "Operating Limitations—Powerplant—Auxiliary Power Unit."

7. AC POWER, APU GEN Switch  
(If APU Available) ..... ON

### **NOTE**

If above 13,000 feet, relight using windmilling start procedure. Maintain 240 KIAS until ready to initiate windmill start.

If relighting using APU bleed air (13,000 feet and

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below), maintain between 170 to 190 KIAS until ready to start.

After ADG deployment or APU generator switching intermittent failure of the Captain's or First Officer's air data systems may occur. These failures may result in uncommanded changes to the Captain's or First Officer's flight instruments.

Flight crews should check and reset as required, the barometric altimeter setting, altitude preselector, V-speeds, and speed bug settings after ADG deployment or APU generator switching events.

To relight using windmilling procedure (21,000 feet and below):

Attempt to start both engines at the same time.

1. IGNITION, CONT Switchlight ..... CHECK ON

Check the following:

- a. CONT IGNITION status message illuminates.

#### NOTE

An altitude loss of approximately 5,000 feet can be expected when accelerating from 240 to 300 KIAS.

2. Airspeed ..... INCREASE

Increase to 300 KIAS or greater to achieve the required  $N_2$ .

Maintain airspeed throughout lightoff until engine start is complete (stable idle).

When engine rotation is established:

- Between 21,000 and 15,000 feet, ITT is below 90° C (194° F) and  $N_2$  reaches at least 12%, or
- At 15,000 feet and below, ITT is below 90° C (194° F) and  $N_2$  reaches at least 9%

3. Thrust Levers ..... IDLE

4. Airspeed ..... MAINTAIN

Maintain greater than 300 KIAS airspeed.

Maintain airspeed throughout lightoff until engine start is complete (stable idle).



5. Engine indications ..... MONITOR

**NOTE**

If engines do not relight within 25 seconds from thrust lever movement to IDLE, retard thrust levers to SHUT OFF and maintain airspeed for 30 seconds and repeat relight procedure.  $N_2$  acceleration should be positive and uninterrupted. Stable idle speed must be reached within 2 minutes.

To relight using APU bleed air (13,000 feet and below):

**NOTE**

Inflight restarts have been demonstrated at 13,000 feet and below using the APU for bleed air with a 15 kVA electrical load.

1. Target Airspeed ..... RE-ESTABLISH

AIRPLANE WEIGHT	TARGET AIRSPEED
51,000 lb (23,133 kg)	190 KIAS
36,000 lb (16,364 kg)	170 KIAS

2. BLEED AIR, 10TH STAGE  
L and R Switchlights ..... PRESS OUT

Press out to close the 10th-stage bleed valves.

Check that the L and R 10TH SOV CLSD status message illuminates.

3. BLEED AIR, APU LCV  
Switchlight ..... PRESS IN

Press in to open the LCV.

Check that the APU LCV OPEN status message illuminates.

4. IGNITION, CONT  
Switchlight ..... CHECK ON

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Check the following:

- a. CONT IGNITION status message illuminates.

Attempt to start one engine at a time:

5. ENG, L or R START  
Switchlight ..... PUSH

Check that the L or R ENGINE START status message illuminates.

When relight envelope is established:

- At 13,000 feet and below, ITT is below 90° C (194° F) and N<sub>2</sub> reaches at least 28%.

6. Thrust Lever ..... IDLE

Monitor engine parameters carefully.

7. Engine Indications ..... MONITOR

Monitor carefully.

### NOTE

If engine does not relight within 25 seconds from thrust lever movement to IDLE, retard thrust lever to shut off, press affected ENG STOP switchlight and attempt to relight the other engine.

**If neither engine is restarted:**

1. Consider a forced landing or ditching. Notify cabin crew.
2. Thrust Levers ..... BOTH SHUT OFF
3. Target airspeed ..... RE-ESTABLISH

Re-establish as best glide speed.

AIRPLANE WEIGHT	TARGET AIRSPEED
51,000 lb (23,133 kg)	190 KIAS
36,000 lb (16,364 kg)	170 KIAS

4. Prepare for a forced landing or ditching. (Refer to the Ditching procedure in this section.)

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When at least one engine is stabilized at flight idle:

1. Thrust lever(s) ..... AS REQUIRED
2. AC POWER,  
GEN 1 or GEN 2 Switch ..... ON

Select affected generator ON.

GEN 1 or GEN 2 OFF caution message extinguishes.

### NOTE

After ADG deployment or APU generator switching, intermittent failure of the Captain's or First Officer's air data systems may occur. These failures may result in uncommanded changes to the Captain's or First Officer's flight instruments.

Flight crews should check and reset, as required, the barometric altimeter setting, altitude preselector, V-speeds, and speed bug settings after ADG deployment or APU generator switching events.

Operative engine:

3. BLEED AIR, 10TH STAGE  
L or R Switchlights ..... CHECK OPEN

Check that the L or R 10TH SOV CLSD status message extinguishes.

4. AIR-CONDITIONING,  
L or R PACK Switchlights ..... CHECK ON

Check that the L or R PACK OFF status messages extinguish.

### NOTE

Use only one air-conditioning pack during single-engine operations, when the operating engine is the only 10th-stage bleed source.

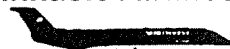
Airplane altitude maximum 25,000 feet during single pack operations.

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Re-establish normal power:

5. ADG Manual Deploy Handle ..... STOW
6. ADG PWR  
TXFR Switch ..... PRESS TO OVERRIDE

If only one engine is operating:

1. Single-Engine Procedures ..... ACCOMPLISH

Refer to "Abnormal Procedures—Single Engine Procedures."